WHAT IS CLAIMED IS:

1.   A well system, comprising:

a device which expands into a space in a borehole, the
5   space being at least partly defined by a castable material
disposed in the borehole,

wherein the device comprises an annular element
disposed on a tubular structure in the borehole and
including an expandable material capable of extending from
10   a retracted state to an expanded state.

2.   The system of claim 1, wherein the space is at
least partly defined by a wall of the borehole.

15   3.   The system of claim 1, wherein the space is at
least partly defined by the tubular structure.

4.   The system of claim 1, wherein the space at least
partly holds a fluid.

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5.   The system of claim 1, wherein the annular
element is adapted to extend from the retracted state to
the expanded state as a reaction to exposure to a fluid in
the space.

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6.   The system of claim 1, wherein the castable material comprises hardened concrete.

7.   The system of claim 1, wherein the space comprises an elongated channel substantially defined by the castable material, the tubular structure and the borehole wall.

8.   A method of sealing a space in a borehole, the space being at least partly defined by a castable material disposed in the borehole, the method comprising the steps of:

5   disposing on a tubular structure at least one annular element comprising an expandable material capable of extending from a retracted state to an expanded state;

extending the tubular structure into the borehole;

providing the castable material into a volume defined 10 by a wall of the borehole and an outer surface of the tubular structure; and

extending the expandable material into the space.

9.   The method of claim 8, wherein the disposing step 15 further comprises disposing a plurality of the annular elements at spaced intervals along a length of the tubular structure.

10.   The method of claim 8, wherein the expandable 20 material is adapted to extend from the retracted state to the expanded state as a reaction to exposure to a fluid in the space.

11.   The method of claim 8, wherein the expandable 25 material extends into the space after the castable material has hardened.

12.   The method of claim 8, wherein the space comprises an elongated channel substantially defined by the castable material, the tubular structure and the borehole wall.

13.   A method of sealing an annulus in a borehole, the
method comprising the steps of:

positioning an expandable material on a tubular
structure;

5   installing the tubular structure in the borehole, the
annulus being formed between the tubular structure and the
borehole;

flowing a castable material into the annulus, the
castable material partially displacing a fluid in the
10   annulus, but leaving at least one space containing the
fluid in the annulus; and

expanding the expandable material into the space.

14.   The method of claim 13, wherein the positioning
15   step further comprises positioning a plurality of sleeves
on the tubular structure, each of the sleeves including the
expandable material.

15.   The method of claim 13, wherein the expanding
20   step is performed in response to contact between the
expandable material and the fluid.

16.   The method of claim 13, wherein the expanding
step is performed at least partially after the castable
25   material has hardened in the annulus.

17. The method of claim 13, wherein the flowing step further comprises leaving the space so that the space is bounded at least partially by the castable material.

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18. The method of claim 13, wherein the flowing step further comprises leaving the space so that the space is bounded at least partially by the borehole.

10   19. The method of claim 13, wherein in the positioning step the expandable material comprises a swellable material.

20. The method of claim 13, wherein the flowing step
15 further comprises contacting a portion of the expandable material with the castable material, and contacting another portion of the expandable material with the fluid in the space.